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### **Game structure**

- Levels
  - multiple rooms
  - One array per level
- Every third(?) level has a shop
- No save system
  - Game always starts from the beginning (level 0)
- There are 10 floors (Levels) in the game. Floor 5 and 10 are bosses.

### **Game design**

- Game has an innate clock (2 tick per second) and the player and creatures are gated at max 1 action (movement, interact, attack etc.) per tick
- Start at lvl 0 (base/home with shop)
- Beat level in order to get key to enter the next level
- Level design
  - Puzzles
    - Gain items
    - Chance to gain the key to progress next level
  - Enemies
    - Gain XP
    - Items
    - Gold
    - Chance to gain the key to progress next level
- Earn XP to level up
  - Every level gained
    - Base stats increase
      - HP +1
      - etc...
- Perks
  - Health regeneration
  - Extra Damage
  - Extra defence
  - Etc.

The map is multiple arrays (levels), where each element (class tile) has a value which represents a wall/air etc.

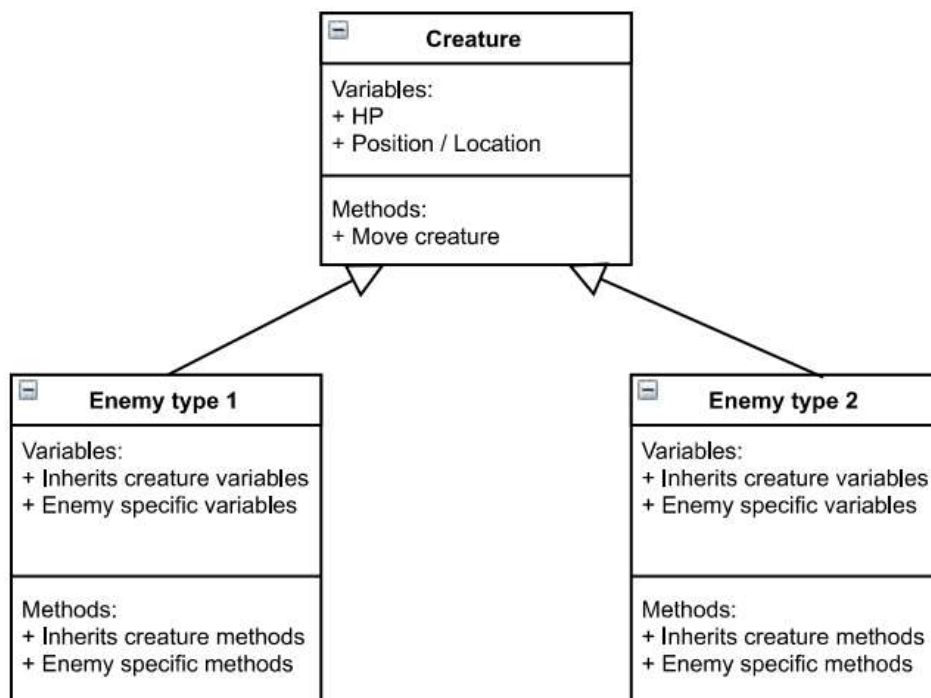
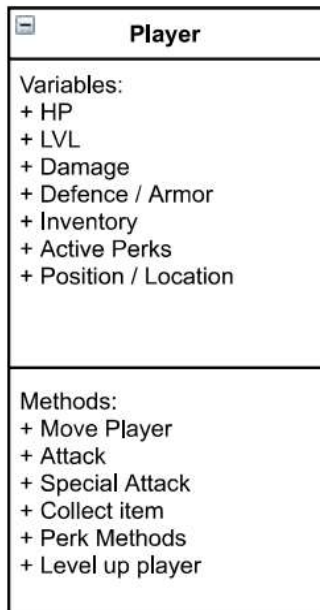
Objects that inhabit the map have the classes creature, friendlies, pickup item, class tile which have sub classes as needed.

### **Classes**

- Collectable / Pick up item

- Weapon
  - Food
  - Armour
  - Key
  - Class properties
    - Weight
- Class tile / interactable
  - Class properties
    - Press input key for action
  - Doors
  - Buttons
  - Health replenish stations? Well
  - Air
  - Wall
- Creature (abstract class)
  - Class properties
    - HP
  - Enemy 1
  - Enemy 2
- Friendlies
  - Class properties
    - Interact/talk
- Player
  - Class properties
    - XP/lvl
    - Health
    - Damage/strength
    - Resistance (physical/magic)
    - Mana/resource bar (special attack)
    - Resource regen
    - Equipped items
    - Inventory/backpack
    - Active perks
    - Place on array/location

## Diagrams



## Libraries

<ctime>

<iostream>

<SFML>

etc basic libraries...

GUI is first done in Terminal, after the game works we try to make GUI with SFML.

### TO-DO

- Internal clock
- Player movement
- Creating and testing different tiles
- Loading levels from file into array
- Room transitions
- Combat
- Interaction with friendlies, shops etc.
- Inventory
- Level-up system
- Perk system
- Creating rooms
- Creating creatures
- Creating pick-ups

### Internal clock sketch:

while true

    While time()-timestamp < 0.5s

        wait for input

    timestamp = time()

    update player

    for enemy

        update enemy

    for npc

        update npc

### Responsibility distribution:

#### Ville Piesala

- Basic Structure
  - Map
  - Internal clock
- Loading rooms from file
- Different rooms planning and drawing

#### Jarno Venäläinen

- Player
  - Player position
    - X & Y
  - Movement
    - Arrow keys
  - Stats
    - HP / Health

- Attack
  - Normal Attack
  - Special Attack
- Defence
  - Shields
- Perk system
  - Perk functions in class
- Level-UP system
- Pick-UP system
  - Personal notes
    - If collectable
      - Add to inventory
- Inventory
  - Collectable items
    - Keys
    - etc...
- Personal notes
  - Equipment own vector
  - Items own vector

## **Kristian Wasastjerna**

- GUI

## **Vesa Ala-Laurinaho**

- Creatures
    - Slight randomness in base stats;
      - damage
      - reduction
      - health
    - Monster-level
    - Aggressiveness?
    - Kill rewards:
      - gold
      - items
      - xp
  - Friendlies
    - Interact
      - talk
    - Shops
      - Items to sell as vector
      - Do we need to inspect
  - Combat
  - Items
    - weapons
      - Attack speed
      - Attack damage
      - Special attack
- Stats given

**Modules:**

main.cpp  
Creatures.hpp  
Player.hpp  
Friendlies.hpp  
Pickup.hpp  
Draw.cpp (for terminal UI)  
Room.cpp  
Tiles.cpp  
GUI.cpp (for graphical UI)

**Project Timeline / Schedule**

- Week 44 (1.11 - 7.11)
  - Project Plan D.L. 5.11
- Week 45
  - Working on backend etc
- Week 46
  - Prototype level is completed, able to play a single level (minimal content) and test all mechanics
- Week 47
  - Working on GUI
  - Working on adding more content, randomizing maps, monsters etc.
- Week 48
  - Final project is finished
- Week 49 (6.12 - 12.12)
  - Project D.L 12.12